Rocky Flats
Environmental Technology Site

3-PRO-165-RSP-07.02

Revision 0

CONTAMINATION MONITORING REQUIREMENTS

APPROVED BY _____ T.L. Vaughn _____ 2/28/98
Print Name Date

Responsible Organization Radiological Safety Effective Date 3/24/98

CONCURRENCE BY THE FOLLOWING DISCIPLINES IS DOCUMENTED IN THE PROCEDURE HISTORY FILE

Radiological Safety Section Manager 779
Subject Technical Expert (Radiological Engineering)

USE CATEGORY 3

This document SHALL be at a known location for reference

ISR Review Not Required

The following have been incorporated in this document
97-DMR-001823

Periodic review frequency 4 years from the effective date

DOCUMENT CHANGE FORM (DCF)

DCF #. CHG-07.02-0-2

① DCF Originator W. E. Dick /s/ 8/6/01
Print Sign Date

Organization Rad Eng (SE&QP)

Phone/Pager/Location 8407/2124407/T130B

② (Authorizes processing of request)
Responsible Manager J. W. Mahaffey /s/ 8/7/01
Print Sign Date

Organization Rad Eng (SE&QP)

Phone/Pager/Location 2131/2123271/T130B

③ Assigned SME R. G. Johnson
Print Name

Organization Rad Eng (SE&QP)

Phone/Pager/Location 5280/2126293/T130B

④ Contamination Monitoring Requirements
Document Title

3-PRO-165-RSP-07.02, Rev. 0
Existing Document Number and Revision

N/A
New Document Number and Revision (if Applicable)

⑤ Type of Document

- ☐ Policy
- ☐ Mgt Directive
- ☐ Manual
- ☒ Procedure (indicate type)
  - ☒ Technical
  - ☐ Alarm
  - ☐ Administrative
  - ☐ Other
- ☐ Instruction
- ☐ Job Aid
- ☐ Other

If "Other" is checked please specify type ______

⑥ Type of Modification

- ☐ New
  - ☐ One Time Use Only
- ☐ Revision
- ☒ Change
  - ☒ Minor
  - ☐ Major
  - ☐ Cancellation

⑧ Proposed Modification	⑨ Justification
Modify List of Effective Pages based on amended page changes	Per Site Document Requirements Manual (SDRM) and PRO-815-DM-01
Page 8, Modify note to "Contamination surveys are recorded on a survey form (i e Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent), and must include as a minimum the information specified in MAN-102-SRCM Site Radiological Control Manual, Article 751 and 754"	Clarifies what an appropriate survey form is And also be consistent with DCF# CHG-07 01-0-3 to RSP-07 01 procedure for documenting surveys
Page 9, Step 4 3.2[3], add the following text "on the survey form (i e Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent)"	Same justification as the 2nd item above Also identifies at the beginning of the section what an appropriate survey form is
Page 9, Step 4 3 2[4], replace "RSFORMS-07 02-01, Radiological Contamination Survey Form, if applicable" with 'survey form, as applicable'	Editorial correction in grammar consistent with the above changes
Page 10, Step 4 3 3[4], delete the word "appropriate" and add text "(i e , Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent)" after the word survey form	Same as above
Page 11, Step 4 3 4[5], delete the word "appropriate contamination"	Same as above
Page 11 & 13, Step 4 3 4[7][B] & 4 4[9] replace "Radiological Contamination Survey Form" with "survey form"	Same as above
Page 12, Step 4 4[5] add the following text " (i e , Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent)"	Same justification as 3rd item from the top

External (Technical) Review

⑩ Reviewing Organization	⑪ Signature or Name of Reviewer	⑫ Date	⑩ Reviewing Organization	⑪ Signature or Name of Reviewer	⑫ Date
Subject-Matter Expert	/s/ R. G Johnson	8/7/01			
Rad Engineering	/s/ J W Mahaffey	8/7/01			
KHQP (QA) for minor change	/s/ D Gillespie	8/8/01			

⑬ Special Reviews (NOTE Other Special Reviews may be required, See PRO-815-DM-01 for more information)

ISR (Number or "Not Required") Not Required

TI Alignment (signature or N/A) /s/ R L Mitchell 8/7/01
Sign Date

Reviewed for Classification
(If Required "N/A" if not)
By [signature]
Date 9 AUG 01 (UNU)

⑭ Approval (Completed to approve changes and cancellations only New documents and revisions are approved by signature on the document cover page)

Approval Authority M. L. Lesinski [signature] 8/8/01 Effective Date 8/14/2001
Name Sign

PADC-1998-00447

2

DCF (continuation sheet)

DCF# CHG-07 02-0-2

(4)

Document Title	Existing Document Number and Revision
Contamination Monitoring Requirements	3-PRO-165-RSP-07 02, Rev 0

(9) Proposed Modification	(10) Justification
Page 17, Section 5, replace "RSFORMS-07 02-01, Radiological Contamination Survey Form" with 'Survey Form"	Remain consistent with DCF# CHG-07 01-0-3 to RSP-07 01 procedure for documenting surveys For ease of use, the term Survey Form is utilized to mean RSFORMS-07 02-01, RSFORMS-07 01-01, Appendix 3 of procedure 3-PRO-164-RSP-07 01, or an equivalent
Page 17, Section 6, add designation "MAN-102-SRCM" in front of RFETS Radiological Control Manual title	Update document with current designation
Page 18, Section 6, replace procedure designation "PRO-HO2-HSP-03 02" with "PRO-998-RSP-13 01"	Update procedure with current designation
Page 18, Section 6, add reference "3-PRO-164-RSP-07 01, Radiation, Contamination, and Airborne Radioactivity Survey Frequency"	Per PRO-815-DM-01 it is recommended that documents referenced in the body of the text be included as part of reference section Editorial
Other	
USQD Program Review Not required	Not required for minor changes per PRO-815-DM-01
Editorial Review and Validation None	Optional per PRO-815-DM-01 The Responsible Manager (RM) has determined it is not necessary for these changes
DCF reviewer list	As identified by RM in accordance with PRO-815-DM-01 step 5 3 2[2] and Appendix 2

Page 1 of 1

DOCUMENT CHANGE FORM (DCF)

DCF # 2000-RMRS-DCF-093

DCF Originator D A Barnes /s/ D A. Barnes 2/14/00
Print Sign Date

Organization RMRS, RESS

Phone/Pager/Location 5352/212-6541/T130B

Responsible Manager H B Estabrooks /s/ H B Estabrooks 2/14/00
Print Sign Date

Organization RMRS, RESS

Phone/Pager/Location 3769/212-6469/T130B

Assigned SME for P R Smith /s/ H B Estabrooks 2/14/00
Print Sign Date

Phone/Pager/Location 5109/212-3691/T130B

Prescreen/SES/USQD Number n/a

Independent Safety Review n/a

Contamination Monitoring Requirements
Document Title

3-PRO-165-RSP-07 02, Rev 0
Existing Document Number and Revision

N/A
New Document Number and Revision (if Applicable)

Type of Document

☐ Policy ☐ Directive ☐ Manual ☐ Technical Standard
■ Procedure ☐ Instruction ☐ Job Aid ☐ Other

Type of Modification

☐ New ○ One Time Use Only
☐ Revision
☐ Cancellation
■ Change ○ Editorial ○ Intent ● Non-Intent

Effective Date 3/1/00 Expiration Date N/A

Item	Page	Step	Proposed Modification
1	2	LOEP	Modify list of effective pages to match attached affected pages
2	10 12	4 3 3 4 4	Add the following to the note above Step 4 3 3[4] and Step 4 4[4] Management may also direct other methods of recording instrument readings (i e , actual meter readings in dpm or raw cpm values as long as the applicable instrument background(s), efficiencies and area are also recorded) This direction shall be documented
3	13	4 4	Modify Step 4 4[8] to change "Log Number" to "PRN/REN # " and "For" to and/or "Comments" blocks as appropriate

Item	Justification
1	per Site Document Requirements Manual
2	Clarification added to note to allow flexibility in documenting site surveys in compliance with Nureg-1575 Marssim
3	Step is meaningless and is being rewritten

Reviewing Organization	Name of Reviewer	Date	Reviewing Organization	Name of Reviewer	Date
RMRS Rad Safety	/s/ R E Sawyer	2/16/00			
KH RP	/s/ W G Zurliene	2/29/00			
SSOC	/s/ D K Gonzales for MPR	2/24/00			

Approval Authority T L Vaughn
Print Sign 3/29/00 Date

PADC-1998-00447

REVIEWED FOR CLASSIFICATION
By R S Eichorst 3/1/00

4

Page 1 of 1

DOCUMENT CHANGE FORM (DCF)

DCF # 99-RMRS-DCF-416

DCF Originator P R. Smith /s/ P R. Smith 11/22/99
Prnt Sign Date

Organization RMRS, RESS

Phone/Pager/Location 5109/212-3691/T130B

Responsible Manager H B Estabrooks /s/ H B Estabrooks 11/23/99
Prnt Sign Date

Organization RMRS, RESS

Phone/Pager/Location 3769/212-6469/T130B

Assigned SME P R Smith /s/ P R Smith 11/22/99
Prnt Sign Date

Phone/Pager/Location 5109/212-3691/T130B

Prescreen/SES/USQD Number Categorical Exclusion

Independent Safety Review not required

Contamination Monitoring Requirements
Document Title

3-PRO-165-RSP-07 02, Rev 0
Existing Document Number and Revision

N/A
New Document Number and Revision (if Applicable)

Type of Document

☐ Policy ☐ Directive ☐ Manual ☐ Technical Standard
■ Procedure ☐ Instruction ☐ Job Aid ☐ Other

Type of Modification

☐ New ○ One Time Use Only
☐ Revision
☐ Cancellation
■ Change ○ Editorial ● Intent ○ Non-Intent

Effective Date 2/1/00 **Expiration Date** N/A

Item	Page	Step	Proposed Modification
1	2	LOEP	Modify list of effective pages to match attached affected pages
2	3	TOC	Modify Table of Contents to match attached affected pages
3	Globally	Globally	Delete the number "3" in 3-PRO-166-RSP-07 03
4	11	4 3 4[4]	Delete the number "4" and "019" from 4-JOB-019-RSP-07 02-02
5	14	4 4[18] [B]	Move step [18] [B] "When information " to step [15] and renumber the subsequent steps
6	15	4 5[5]	Delete the words "Projects & Programs" from Radiological Engineering
7	17	5	Change "Disposition of Records" to "Records Processing Instructions" and add matrix table
8	17	6	Delete the document number "DOE/EH-0256T" and title from reference
9	17	6	Change document number for Radiological Improvement Report to "PRO-H02-HSP-03 02"
10	17	6	Delete reference to "Used to Evaluate " from text.

Item — **Justification**

1&2 - per Site Document Requirements Manual
3 4 9- editorial change in updating references to current nomenclature
5 - This step is performed by RCTs
6 - Simplified due constant organizational title changes
7 - per Site Document Requirements Manual a Records Processing section was added 8 - reference no longer required or used, the Site RCM is used
10- meaningless reference

Reviewing Organization	Name of Reviewer	Date	Reviewing Organization	Name of Reviewer	Date
RMRS Rad Safety	/s/ R E Sawyer	12/2/99			
KH RP	/s/ W G Zurliene	12/1/99			
SSOC	/s/ D K Gonzales for MPR	12/8/99			

Approval Authority T L Vaughn
Print Sign 1/26/00 Date

PADC-1998-00447

'REVIEWED FOR CLASSIFICATION
By Roger S. Cochran UMM
Date February 1, 2000

5

Page 1 of 1

DOCUMENT CHANGE FORM (DCF)

(7) DCF # 99-RMRS-DCF-272

(1) DCF Originator J Stewart /s/ J Stewart 4/22/99
Print Sign Date

Organization Rad Safety

Phone/Pager/Location X-2557/ 212-3852/ T-130b

(2) Responsible Manager W J Bair /s/ W J Bair 4/23/99
Print Sign Date

Organization RESS

Phone/Pager/Location 8408/2125389/ T130B

(3) Assigned SME P R Smith /s/ P R Smith 4/23/99
Print Sign Date

Phone/Pager/Location 5109/ 2123961/T130B

(xa) Prescreen/SES/USQD Number n/a

Independent Safety Review n/a

(4) Contamination Monitoring Requirements
Document Title

3-PRO-165-RSP-07 02, Rev 0
Existing Document Number and Revision

N/A
New Document Number and Revision (*If Applicable*)

(5) Type of Document

☐ Policy ☐ Directive ☐ Manual ☐ Technical Standard

x Procedure ☐ Instruction ☐ Job Aid ☐ Other _____

(6) Type of Modification

☐ New x Change
○ One Time Use Only ○ Editorial
☐ Revision ○ Intent
☐ Cancellation x Non-Intent

(9) Effective Date 8/5/99 Expiration Date: n/a

(10) Item	(11) Page	(12) Step	(13) Proposed Modification
1	2	LOEP	Modify LOEP to reflect attached pages
2	14	4 4	Step 4 4 [18] B Replace " leave the recording space blank" with "write N/A in the recording space or line through multiple blank spaces and write N/A as appropriate"

(10) Item	(14) Justification
	1) SDRM editorial 2) To demonstrate adequate and complete documentation of records as per site RCM Chapter 7 Part 5 section 751

(15) Reviewing Organization	(16) Name of Reviewer	(17) Date	(15) Reviewing Organization	(16) Name of Reviewer	(17) Date
RMRS		8/4/99			
SSOC	/S/ D A MUNOZ	6/21/99	for MPR		
K-H RP	/s/ W G ZORTMAN	4/23/99			
RFCCS RP	/s/ J W Kamerman	4/23/99			
WACKENHUT	/s/ C.E Christman	4/26/99			

(18) Approval Authority T L. Vaughn
Print Sign

8/4/99
Date

PADC-1998-00447

6

LIST OF EFFECTIVE PAGES

Pages	Effective Date	Pages	Effective Date
1	02/17/98	14-15	02/01/00
2	08/14/01	16	02/17/98
3	02/01/00	17-18	08/14/01
4	02/17/98		
5	02/01/00		
6-7	02/17/98		
8-13	08/14/01		

Total number of pages 18

The following DCFs are active for this document
99-RMRS-DCF-272
99-RMRS-DCF-416
2000-RMRS-DCF-093
CHG-07 02-0-2

TABLE OF CONTENTS

1. PURPOSE

This procedure provides the minimum requirements to ensure site wide consistency in monitoring personnel, surface area, and contracted anti-contamination clothing that has entered a Radiological Buffer Area (RBA), for radioactive contamination

2. RESPONSIBILITIES

2.1 Radiological Control Technician (RCT)

Perform and document contamination surveys in accordance with the instructions of this procedure

Notify Radiological Safety (RS) Supervision of any out of tolerance condition

2.2 RS Supervision

Review all survey forms for accuracy and trending

Take appropriate actions to mitigate the spread of contamination

3. LIMITATIONS AND PRECAUTIONS

Naturally-occurring radioactive gases (i e , radon and thoron), have daughter products (progeny) which decay by alpha and beta emission and can be falsely interpreted as DOE radioactive material Material or property believed to be free of contamination may be recounted a minimum of twenty (20) minutes after the initial count to allow for decay of short-lived isotopes A decrease in alpha activity over 20 minutes, accompanied by beta activity, indicates the presence of these short-lived naturally-occurring isotopes Recounting two to four hours after the initial count should allow for a majority of naturally-occurring radioactive material to decay

9

4. INSTRUCTIONS

4.1 Monitoring Personnel for Contamination

This section is a stand-alone section, and may be performed independently or in conjunction with other Instruction sections

RCT

[1] **IF** a Personnel Contamination Monitor - 2 (PCM-2) is not available nearby to perform a whole body frisk,
THEN use a portable contamination instrument to perform the survey

[2] **IF** the count rate increases during the survey,
THEN pause 15 to 20 seconds over the area to provide adequate time for the instrument to respond

[3] Perform a one minute count if the count rate increases during a alpha contamination survey

[4] **IF** the corrected count rate on any surface exceeds the Minimum Detectable Count rate, for the selected instrument,
THEN:

[A] Consider the surface contaminated and handle in accordance with **PRO-166-RSP-07.03**, Response to Personnel Contamination

[B] Notify the RCT Supervisor and request assistance as necessary

10

4.1 Monitoring Personnel for Contamination (continued)

[5] **WHEN** exiting a Contamination Area (CA) and proceeding across an RBA to enter another CA,
THEN ensure that the individual anti-C clothing is less than 500 dpm/100 cm^2 alpha and 1000 dpm/100 cm^2 beta/gamma by direct survey before proceeding to the next CA.

[6] **IF** contamination levels exceed 500 dpm/100 cm^2 alpha and 1000 dpm/100 cm^2 beta/gamma by direct survey,
THEN direct the individual to remove all anti-C clothing and perform a whole body frisk

4.2 Personnel Contamination Monitor Alarm Response

This section is a stand-alone section, and may be performed independently or in conjunction with other Instruction sections

RCT

[1] **IF** an individual is being monitored and the alarm sounds,
THEN:

[A] Instruct the individual to remain stationary

[B] Review the on-screen display or instrument reading to determine the location of the alarming detector and activity level

The PCM-2 on-screen display may show one of the following:

- If the area of the alarm is solid red, the contamination is in that specific area.
- If the area is hatched red, the contamination is the sum of many detectors which indicates a general area contamination.

4.2 Personnel Monitor Alarm Response (continued)

[C] Reset the PCM-2 by pressing the **ALARM ACKNOWLEDGE** key.

[2] **IF** the level of contamination is less than 1000 dpm above background for alpha,
OR less than 10,000 dpm above background for beta,
THEN instruct the individual to self-monitor again.

[3] Inform the individual, based on the results of the scan, to do one of the following:

[A] Leave if the instrument clears (no alarm) on the second pass

[B] **IF** the level of contamination is greater than or equal to 1000 dpm above background for alpha,
OR greater than or equal to 10,000 dpm above background for beta,
THEN monitor the individual using a hand-held instrument in accordance with Section 4.1, Monitoring Personnel, for contamination Steps 1 through 4

4.3 Monitoring Surfaces for Contamination

Surveys are performed to locate contamination on surfaces. Swipes and direct readings should be taken in places where contamination is likely to accumulate.

Where surface contamination by both alpha and beta emitting radionuclides exist, the limits in Table 2-2 of the Rocky Flats Environmental Technology Site Radiological Control Manual (Site RCM) apply independently

12

4.3 Monitoring Surfaces for Contamination (continued)

RCT

CHG-07 02-0-2

NOTE *Contamination surveys are recorded on a survey form (i e , Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent), and must include as a minimum the information specified in MAN-102-SRCM, Site Radiological Control Manual, Article 751 and 754*

[1] Perform surveys as specified in Technical Work Documents, Radiological Work Permits (RWP), or as directed by RS Supervision

[2] **IF** survey results indicate the current area posting is incorrect,
THEN:

[A] Promptly update each posting in accordance with the Site RCM.

[B] Notify RS Supervision

4.3.1 Survey Techniques

The survey technique used should be based on the purpose of the survey For example

- Release survey requires 100 cm^2 swipe
- General information survey can be large area wipes

4.3.2 Wipe Techniques

RCT

Large area wipes are typically taken over an area greater than 2 m^2 Hand held wipes are typically taken over an area of at least 1 m^2

13

4.3.2 Wipe Techniques (continued)

[1] Scan the wipe for alpha and beta contamination as appropriate, using approved instruments in the ratemeter mode

[2] **IF** fixed contamination from the mop head interferes with the instrument reading, **THEN** remove the medium from the mop head to scan

C1G-07 02-0-2

[3] Record the highest reading from each wipe in units of dpm/area surveyed on the survey form (i e , *Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent)*

[4] Indicate the location of the wipe on the survey form, as applicable

[5] **IF** contamination is found above the Minimum Detectable Activity (MDA), **THEN** perform a swipe survey in accordance with Section 4 3 3, Swipe Techniques

4.3.3 Swipe Techniques

NOTE *The swipe technique must be used to release an item/area for unrestricted use*

RCT

[1] Choose swipe locations based on the work or evolution to be performed

[2] Number each swipe location on a survey map, diagram, or sketch

[3] Swipe approximately 100 cm^2 of surface area with a dry filter or soft absorbent paper

4.3.3 Swipe Techniques (continued)

2000-RMRS-DCF-093

NOTE *MDAs shall be less than the applicable limit in Table 2-2 of the Site RCM When the measured values are less than the calculated MDA of the instrument used, the recorded value shall be less than the numeric MDA value (i e , <20 dpm) Management may also direct other methods of recording instrument readings (i e , actual meter readings in dpm or raw cpm values as long as the applicable instrument background(s), efficiencies, and area are also recorded) This direction shall be documented*

CHG-07 02-0-2

[4] Count the swipes and record the survey results on the survey form (i e , Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent) in accordance with Section 4.4, Documentation

[5] Attach computer generated counting activity reports to the survey form, if applicable

[6] **IF** the contamination level is greater than the Site RCM Table 2-2 values,
AND further analysis is required by RS Supervision,
THEN retain and place each swipe into a separate glassine envelope and label

4.3.4 Direct Measurement Techniques

RCT

[1] Monitor the item to be surveyed

[2] **IF** the audible response increases,
THEN perform a timed PAT Survey at the location of the highest count rate

[3] Perform an appropriate number of PAT Surveys for the level of survey being performed

15

99-RMRS-DCF-416

CHG-07 02-0-2

4.3.4 Direct Measurement Techniques (continued)

[4] Calculate the surface activity using the equation and information provided in **JOB-RSP-07.02-02**, Total Surface Activity Calculation

[5] Record the instrument readings in dpm/100 cm^2 on the survey form in accordance with Section 4 4, Documentation

[6] **IF** the contamination level is greater than Site RCM Table 2-2 values,
AND further analysis is required by RS Supervision,
THEN bag the item and treat as contaminated material

[7] Using the Instrument Technical Specification Sheet specified in **4-JOB-018-RSP-07.02-01** determine:

[A] **IF** background is less than or equal to the value for the instrument,
THEN calculate and record the MDA value for the instrument used unless written direction is provided by Radiological Engineering (RE) or RS Supervision

CHG-07 02-0-2

[B] **IF** background is greater than the value for the instrument,
THEN calculate and record the MDA on the survey form

The equation for calculating the MDA is as follows

$$MDA = CF \times \left[2.71 + 4.65\sqrt{Background(cpm)}\right]$$

MDA = Minimum detectable activity
CF = Conversion factor
cpm = Counts per minute

16

4.4 Documentation

RCT

NOTE *DO NOT use shorthand, non-standardized terms, or opaque substances for corrections*

[1] Document surveys accurately and legibly in ink with sufficient detail to ensure that the meaning and intent of the record is clear

[A] Make corrections as follows
- [a] Draw a single line through the incorrect entry
- [b] Record the correct entry
- [c] Date and initial the correction

[2] Use ditto marks for continuation lines only in Location/Description blocks

[3] Enter sufficient detail to ensure that the identification of the original survey and the sampling location(s) is maintained and clear

NOTE *Results recorded as dpm/swipe or dpm/area surveyed must be clearly marked in the "Location/Description" block on the survey form since the forms are labeled in units of dpm/100 cm^2 When the recorded values are less than the MDA, the MDA value shall be annotated on the survey form Management may also direct other methods of recording instrument readings (i e , actual meter readings in dpm or raw cpm values as long as the applicable instrument background(s), efficiencies, and area are also recorded) This direction shall be documented.*

2000-RMRS-DCF-093

[4] Record each specific value or less than the MDA value for the instrument used unless written direction is provided by RE or RS Supervision

CHG-07 02-0-2

[5] Record the background level on the survey form (i e , Appendix 3 of procedure 3-PRO-164-RSP-07 01, or equivalent)

17

4.4 **Documentation (continued)**

[6] Record applicable information on the survey form, in addition to the radiological data

[7] **IF** the survey is performed to follow-up decontamination,
THEN cross-reference the follow-up survey documentation with the original survey

2000-RMRS-DCF-093

[8] Record the applicable document(s) requiring the surveys on the survey form in the "**PRN/REN #:**" and/or "**Comments**" blocks as appropriate

CHG-07 02-0-2

[9] Record all required instrument information on the survey form

[10] Record any pertinent information needed to interpret the survey results

[11] Record name, signature and employee number of individual(s) performing the survey

[12] Use the symbols "X---X---X" to represent boundaries, and appropriate Radiological Area designations

[13] Designate step-off pads using the symbol "SOP"

99-RMRS-DCF-416

[14] Once all survey results have been recorded, sequentially number all pages and enter the appropriate log number on each page

[15] When information on a form is not required, write N/A in the recording space or line through multiple blank spaces and write N/A as appropriate

18

99-RMRS-DCF-416

4.4 Documentation (continued)

[16] Submit the completed survey form to RS Supervision for review

RS Supervision

[17] Review survey results to ensure that the survey has been completed as required and the documentation is accurate and complete

[18] Return unacceptable survey forms to the RCT performing/documenting the survey for correction

[19] Ensure the RCT promptly corrects errors and omissions and resubmits the survey results

[A] **WHEN** it is NOT possible for the originator to correct an error, **THEN:**

[a] Enter the correction

[b] Initial and date the correction

[20] Sign the cover sheet denoting review of completed surveys

[21] Evaluate the RWP requirements for the areas surveyed and update RWP requirements, as necessary

RCT

[22] Post copies of completed and reviewed survey forms conspicuously at entrances to Radiological Areas as applicable

19

4.5 Receipt Surveys for Vendor Supplied Laundry

NOTE *Vendor supplied laundry is received in the Central Processing Facility*

RCT

[1] **IF** an RCT remains in the immediate area for the duration of the receipt surveys,
THEN it is not necessary to post the area

[2] **IF** the Radioactive Material Area (RMA) is to be left unattended,
THEN post the area in accordance with the Site RCM

[3] Remove the following items from each L-59 container

Item	Quantity
Coverall	1
Hood	1
Cotton Liner	2
Rubber Glove	4
Nylon Shoe Cover	2
Rubber Overshoe	4

[4] Spot check (direct survey) the items in Step 4 5[3] to ensure that they are less than 1,000 dpm/100 cm^2 alpha and 10,000 dpm/100 cm^2 beta

[5] **IF** any item exceeds the limits in Step 4 5[4],
THEN contact Radiological Engineering for further guidance

[6] **IF** contamination has been detected,
THEN perform whole body contamination monitoring for alpha and beta-gamma in accordance with Section 4 1, Monitoring Personnel for Contamination, of all personnel involved in the operation

4.5 Receipt Surveys for Vendor Supplied Laundry (continued)

[7] Return all items (less than the limits in Step 4 5[4]) to the L-59 containers and ensure that the containers are marked/posted as radioactive material in accordance with the Site RCM

[8] Perform necessary surveys to release the area from RMA controls

4.6. Post-Performance Activity

RCT

[1] Submit the completed survey form to RS Supervision for review

[2] Post copies of completed and reviewed survey forms conspicuously at entrances to Radiological Areas as applicable

RS Supervision

[3] Review all completed survey forms for accuracy and trending

[4] Take appropriate action(s) as necessary to mitigate the spread of contamination, based upon survey results reviewed

5. RECORDS PROCESSING INSTRUCTIONS

All records are maintained and dispositioned in accordance with following

Record Identification	Record Type	Protection/Storage	Processing Instructions
In process Survey Form, and other supporting documents such as counting activity reports, written directions from supervision or RE, and technical work document as appropriate	In-process QA Record	Responsible Manager shall implement a reasonable level of protection for in-process QA records to prevent loss or degradation Records shall be stored in standard office filing systems	Continue prescribed processing of documents Upon completion of processing, approval and authentication records will be transmitted to appropriate Records Center in accordance with 3-PRO-212-RSP-18 01, Guidance on Management of Records in Radiological Safety, and 1-V41-RM-001, Records Management Guidance for Records Sources
Completed Forms[1] and documents as identified above	QA Record	Company specific Records Center maintains QA records in one-hour fire rated cabinets, or other means that are approved/equivalent fire protection, as applicable	When inactive (as defined in 1-V41-RM-001) transfer to Site Records Management for archiving in accordance with 1-V41-RM-001

[1] If the activities of this procedure has been determine by the Responsible Manager and the Project to be WIPP related, then refer to the guidance and note in 1-V41-RM-001, Appendix 10 for protection, storage, and records processing

6. REFERENCES

DOE Order 5400 5, Radiation Protection of the Public and the Environment
Requirements for Swipe Counting and Portable Contamination Survey Instrumentation
MAN-102-SRCM, Rocky Flats Environmental Technology Site Radiological Control Manual
Technical Basis Document, Methods to Demonstrate Compliance with Performance
Title 10 Code of Federal Regulations Part 835, Occupational Radiation Protection

22

99-RMRS-DCF-416
CHG-07 02-0-2
99-RMRS-DCF-416

6. REFERENCES (continued)

PRO-998-RSP-13 01, Radiological Improvement Report

1-V41-RM-001, Records Management Guidance for Records Sources

3-PRO-164-RSP-07 01, Radiation, Contamination, and Airborne Radioactivity Survey Frequency

PRO-166-RSP-07 03, Response to Personnel Contamination

3-PRO-212-RSP-18 01, Guidance for Management of Records in Radiological Safety

LAST PAGE

23

INSTRUMENT LIST

Eberline BC-4	ITSS-02 01-01
Eberline SAC-4	ITSS-02 01-02
Eberline RO-20	ITSS-02 01-03
Ludlum Model 12-1A With Air Proportional Probe	ITSS-02.01-04
Ludlum Model 31 With Ludlum Model 44-9 Pancake GM Detector	ITSS-02 01-05
Referee SAAM - Model 440 Series	ITSS-02 01-06
Bicron Fidler	ITSS-02 01-07
Model 111 - Tritium Monitor	ITSS-02 01-08
NE Electra	ITSS-02 01-09
Victoreen 450 B/G	ITSS-02.01-10
Bicron Frisktech with A-100 (alpha) and B-50 (beta) Probes	ITSS-02 01-11
Bicron Microrem Meter	ITSS-02 01-13
Ludlum 2929	ITSS-02 01-14
Ludlum 12-4	ITSS-02 01-15
Ludlum 2	ITSS-02 01-16
Eberline ESP-1	ITSS-02 01-17
Eberline Xetex Telescan 330A	ITSS-02 01-18

USE CATEGORY 3

APPROVED BY T. L. Vaughn / 2/20/98
Print Signature Date

Responsible Organization Radiological Safety Effective Date 02/17/98

24

TOTAL SURFACE ACTIVITY CALCULATION

$$\frac{dpm}{100\,cm^2} = CF * \left[\frac{total\ counts}{minute} - \frac{background\ counts}{minute} \right]$$

* Conversion Factor for instrument used (from table A)

TABLE A
CONVERSION FACTORS FOR VARIOUS INSTRUMENTS

INSTRUMENT	CONVERSION FACTOR[a] (cpm to dpm/100 cm² total contamination measurement)
Bicron A-100 probe (6 & 60 sec counts)	6
Bicron B-50 probe (60 sec counts)	4
NE Electra DP6 probe (60 sec alpha count)	6
NE Electra DP6 probe (60 sec beta count)	3 6
NE Electra DP8 probe[c] (8 sec alpha count)	1 2
Ludlum 12-1A (air) with no attenuator	4
Ludlum 12-1A (air) with attenuator plate	Varies depending on efficiency (Use the value on the efficiency tag) and the C F formula below
Ludlum 31	20
SAC-4	3
BC-4	4
Ludlum 2929	[b]

[a] Actual probe/instrument conversion factors may be calculated using the following formula

NOTE *Efficiency must be in decimal form, for example 22 3% = 0 223*

$$Conversion\ Factor = \frac{1}{Efficiency} \left[\frac{100\ cm^2}{probe\ area\ (cm^2)} \right]$$

REVIEWED FOR CLASSIFICATION/UCNI
By B. W. Hoffman
Date 4-10-01 NA

[b] Must be calculated for each specific radionuclide of interest

[c] Surveys performed to demonstrate compliance with DOE Order 5400 5, Radiation Protection of the Public and the Environment, must assume all activity under the physical area of the detector is limited to 100 cm² (i e , 300 dpm with a 600 cm² probe should be localized to 100 cm² or less)

APPROVED BY W G. Zurhorst , W G Zurhorst , 4/10/01
Print Signature Date
Responsible Organization Radiation Protection Effective Date 4/10/01

25

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

INSTRUMENT DATA

Mfg _____	Mfg _____	Mfg _____
Model _____	Model _____	Model _____
Serial # _____	Serial # _____	Serial # _____
Cal Due _____	Cal Due _____	Cal Due _____
Bkg _____	Bkg _____	Bkg _____
Efficiency _____	Efficiency _____	Efficiency _____
MDA _____	MDA _____	MDA _____
Mfg _____	Mfg _____	Mfg _____
Model _____	Model _____	Model _____
Serial # _____	Serial # _____	Serial # _____
Cal Due _____	Cal Due _____	Cal Due _____
Bkg _____	Bkg _____	Bkg _____
Efficiency _____	Efficiency _____	Efficiency _____
MDA _____	MDA _____	MDA _____

Survey Type: _____

Building _____

Location _____

Purpose _____

RWP # _____

Date _____ Time _____

RCT _____ / _____ / _____

Print name Signature Emp #

RCT _____ / _____ / _____

Print name Signature Emp #

PRN/REN # _____

Comments _____

SURVEY RESULTS

Date Reviewed. _____ **RS Supervision:** _____ / _____ / _____

Print Name Signature Emp #

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

RADIOLOGICAL SAFETY

Drawing Showing Survey Points